WHAT IS CLAIMED IS:

1. A furnace resource allocator for use in semiconductor wafer fabrication wherein said furnace resource allocator is operable to monitor at least one furnace relative to a remain-open threshold, and selectively flag said at least one furnace in
5   response thereto.

2. A furnace resource allocator as claimed in Claim 1 wherein said furnace resource allocator is operable to allocate a plurality of furnaces to a plurality of furnace tasks within a furnace process system in semiconductor wafer fabrication, said
10   furnace resource allocator capable of rejecting a furnace for carrying out a furnace task if said furnace has been open longer than a predetermined length of time, said furnace resource allocator comprising:

a furnace idle timer unit that comprises a plurality of
15   timers, where each timer is associated with one of said plurality of furnaces, and wherein each timer records an amount of time that has elapsed since its respective furnace has been open; and

a furnace resource allocation controller that is capable of:

selecting a furnace from said plurality of furnaces;

20   obtaining from said furnace idle timer unit a value of said elapsed time since said selected furnace has been open; and

rejecting said selected furnace for carrying out a furnace task if said value of elapsed time for said selected furnace is

greater than a predetermined length of time.

3.   The furnace resource allocator as set forth in Claim 2 wherein said predetermined length of time is fifty five minutes.

4.   The furnace resource allocator as set forth in Claim 2 further comprising a graphical user interface that is operable to send signals from a user to said furnace resource allocator and to send signals from said furnace resource allocator to said user.

5.   The furnace resource allocator as set forth in Claim 2 wherein said furnace process allocation controller is capable of performing pre-production checks on each furnace that is selected to carry out a furnace task.

6.   The furnace resource allocator as set forth in Claim 2 wherein said furnace process allocation controller is capable of selecting another furnace from said plurality of furnaces for carrying out a furnace task after a previously selected furnace has been rejected.

7.   The furnace resource allocator as set forth in Claim 2 further comprising a furnace process monitoring controller that is capable of monitoring measurable characteristics associated with an executing furnace task.

8.   The furnace resource allocator as set forth in Claim 7 wherein said furnace process monitoring controller is capable of one of:

sending a message to work stream software associated with said furnace resource allocator to inform said work stream software than a furnace task has been successfully completed; and

causing said furnace idle timer unit to reset a value of an idle time for a furnace that has successfully completed a furnace task.

9.   The furnace resource allocator as set forth in Claim 2 further comprising a memory unit that comprises furnace process software that is capable of operating elements of said furnace resource allocator.

10.   The furnace resource allocator as set forth in Claim 2 further comprising a furnace cycle purge process controller that is capable of executing a furnace cycle purge process on a furnace to purge said furnace of moisture that said furnace absorbed during the time that said furnace was open.

11.   The furnace resource allocator as set forth in Claim 10 wherein said furnace cycle purge process controller is capable of causing said furnace idle timer unit to reset a value of an idle time for a furnace that has successfully completed a furnace cycle purge process.

12. A method of operating a furnace resource allocator in semiconductor wafer fabrication comprising the steps of:

monitoring at least one furnace relative to a remain-open threshold; and

5   selectively flagging said at least one furnace in response thereto.

13. The method as claimed in Claim 12 wherein said method further comprises the steps of:

recording in a furnace idle timer unit for each furnace of a
10   plurality of furnaces an amount of time that has elapsed since each furnace has been open;

selecting a furnace from said plurality of furnaces;

obtaining from said furnace idle timer unit a value of said elapsed time since said selected furnace has been open; and

15   rejecting said selected furnace for carrying out a furnace task if said value of elapsed time for said selected furnace is greater than a predetermined length of time.

14. The method as set forth in Claim 13 wherein said predetermined length of time is fifty five minutes.

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15.   The method as set forth in Claim 13 further comprising the step of:

sending signals from a user to said furnace resource allocator through a graphical user interface; and

5   sending signals from said furnace resource allocator to said user through said graphical user interface.

16. The method as set forth in Claim 13 further comprising the step of:

performing pre-production checks on each furnace that is

10   selected to carry out a furnace task.

17.   The method as set forth in Claim 13 further comprising the step of:

selecting another furnace from said plurality of furnaces for carrying out a furnace task after a previously selected

15   furnace has been rejected.

18.   The method as set forth in Claim 13 further comprising the step of:

monitoring measurable characteristics associated with an executing furnace task with a furnace process monitoring

20   controller.

19. The method as set forth in Claim 18 further comprising the steps of:

sending a message from said furnace process monitoring controller to work stream software associated with said furnace resource allocator to inform said work stream software that a furnace task has been successfully completed; and

causing said furnace idle timer unit to reset a value of an idle time for a furnace that has successfully completed a furnace task.

20. The method as set forth in Claim 13 wherein said resource allocation controller further comprises a memory unit that comprises furnace process software that is capable of operating elements of said furnace resource allocator.

21. The method as set forth in Claim 13 further comprising the step of:

executing a furnace cycle purge process on a furnace to purge said furnace of moisture that said furnace absorbed during the time that said furnace was open.

22. The method as set forth in Claim 21 further comprising the step of:

causing said furnace idle timer unit to reset a value of an idle time for a furnace that has successfully completed a furnace cycle purge process.